

2000 SCIENCE ADOPTION OF INSTRUCTIONAL MATERIALS

TABLE OF CONTENTS

Subject	Page
Introduction	3
2000 Adoption Process	4
Special Issues	6
Acknowledgements	8
Summary of Adoption Recommendations	13

ADOPTED PROGRAMS

Publisher and Program	Grade Level(s)	
Glencoe/McGraw Hill: Glencoe Science Voyages	6-8	14
Harcourt Brace: Harcourt Science	K-5	16
Holt, Rinehart and Winston: Holt Science and Technology Earth, Life and Physical Science	6-8	19
Houghton Mifflin: Discovery Works	K-5	22
McGraw-Hill: McGraw Hill Science	K-6	24
Prentice Hall: Science Explorer	6-8	26

PROGRAMS NOT ADOPTED

Decision Development: Science 2000+	6-8	28
Delta: Full Option Science System	K-6	30
EOA: Earth, Ocean, Atmospheric Explorer	5, 6, 8	33

Globe Fearon: Concepts and Challenges	6-8	37
RonJon: Select Science	6-8	39
Scott Foresman/Addison Wesley: Scott Foresman Science	K-5	41
SRA/McGraw Hill: Real Science	K-6	44
Videodiscovery: Life Lab	K-2	47
Videodiscovery: Science Sleuths	3-6	49
Videodiscovery: Earth	6	51
 Appendix A: Criteria For Evaluating K-8 Science Instructional Materials		 53
Appendix B: List of Learning Resources Display Center		61

INTRODUCTION

Significance of the 2000 Science Adoption

The State Board of Education adopted science content standards in October, 1998. These standards reflected a consensus of scientists, science educators, and parents. To meet the requirements of AB2519, the State Board approved criteria for adopting science materials on March 10, 1998 and twelve months later on March 10, 2000, adopted instructional materials. The materials not only meet the exacting demands of the criteria but also will aid in teaching to the standards and helping students achieve them. This is the first adoption of instructional materials that supports this state's science standards.

THE 2000 ADOPTION PROCESS

The 2000 Science Adoption of science instructional resources was conducted according to requirements of Education Code Section 60200. The development and review of the criteria for selection of instructional materials and the evaluation instrument used in this adoption were conducted in public meetings with extensive opportunity for public review and input. The evaluation instrument was adopted by the State Board of Education on March 10, 1998 (see Appendix A).

A total of fifteen science programs were submitted by publishers on or before August 13, 1999 for adoption consideration. The materials that publishers submitted were thoroughly reviewed by the 52 members of the Instructional Materials Advisory Panel (IMAP) and 14 members of the Content Review Panel (CRP) appointed by the State Board of Education. The IMAP reviewed the entire programs, as it applied all elements of the evaluation instrument to the entire programs. The IMAP was composed of a majority of kindergarten-through-grade-eight teachers and was augmented with administrators and community members. The Content Review Panel (CRP) which consisted of scholars of science examined materials for accuracy and applied the content criterion. The CRP members reviewed those materials and parts of them that matched their specialty. For example, a biologist examined portions of materials relevant to his or her specialty, and in this case he or she reviewed the parts of materials relevant to the life science strand. This report incorporates the findings of both groups.

The IMAP members participated during the week of August 2-6, 1999, in a professional development session to become familiar with the adoption process, the criteria, and standards. Panel members attended presentations by publishers in which formal information exchanges occurred between the evaluators and the publishers' representatives about specific programs. CRP members participated in the first three days of the week-long session in order to understand the adoption process and the evaluation criteria.

IMAP and CRP members received complete sets of instructional resources for as many as four of the programs submitted for adoption. Members of both panels conducted an independent review of the materials from August to October. During the week of October 17-22, 1999, the IMAP met for deliberations, with each member providing documentation collected during the independent reviews. Publishers and producers had an opportunity to respond to significant questions about submitted programs identified by the IMAP members during the deliberations. For each instructional program, the panel generated one consensus report that articulated the panel's findings and provided a rationale for recommending or not recommending the program for adoption. CRP members attended deliberations and presented their findings to the IMAP which informed the writing of the adoption report. All meetings were announced publicly and were open to the public.

Resources submitted for adoption were displayed for public review and comment beginning August 12, 1999, at 24 learning resources display centers throughout the state (see Appendix B). The general public was given an opportunity to provide written comments between August 1999 and March 2000. The Curriculum Commission held two well-publicized formal public hearings and included a change process for improving the accuracy of materials. The State Board of Education conducted a formal public hearing in February 2000. The State Board and the Commission appreciated the public interest in the resources submitted for adoption and carefully reviewed all the testimony.

It should be noted that for purposes of this process, the Curriculum Commission recommends and the State Board of Education adopts only "basic instructional materials." Basic instructional materials are those resources that are designed for use by pupils as a principal learning resource and that meet in organization and content the basic requirement of the intended course. Supplemental resources, or resources covering less than an entire course content, are not adopted as part of this process.

SPECIAL ISSUES

California's Science Standards, Framework and Criteria

The Academic Standards Commission was created when Governor Pete Wilson signed into law AB 265 in October, 1995. In June 1996, SB 430, an urgency statute, was signed into law with the clause that the State Board of Education “shall modify the curriculum frameworks where appropriate to bring them into alignment with the standards.” This law made standards the basis for curriculum frameworks which serve as instructions to publishers and producers of instructional materials. On September 14, 1998, Governor Wilson signed into law AB 2519 which put in place a schedule of adoptions for history-social science, science, mathematics and English-language arts. The State Board normally begins an adoption by issuing a criteria thirty months prior to taking action on submitted materials, however AB 2519 accelerated the process. The legislation stated:

The schedule for the adoption of instructional materials requires . . . instructional materials for science to be adopted by March 31, 2000,

The State Board of Education approves criteria for the adoption of instructional materials in science at least 12 months before the board adopts instructional materials in science.

To meet statutory requirement, this adoption was based not on a curriculum framework but two documents approved by the State Board, the criteria for adopting instructional materials, March 10, 1999, and the Academic Content Standards for Science, October 1998. The adoption of instructional materials for science began in March 1999 with the State Board of Education approving the criteria for adopting instructional materials and ended with State Board action in March 2000. Taking this into account, schools and districts can be confident that the evaluation criteria and the standards were the bases for the adoption of instructional materials and that the adopted materials are aligned with and support the teaching of the standards.

Accuracy Issues

During the 2000 Science Adoption instructional materials were reviewed for their alignment to the standards and their accuracy. The Content Review Panel in examining the materials for

alignment commented on whether the materials contained scientifically accurate information and interpretations. California is grateful that many of the finest scientists worked on this adoption. Research scientists from the University of California, Stanford, University of Southern California, and the California State University donated their time between August 1999 and January 2000. This alone demonstrates the dedication of these scientists to further every child's education. The members of CRP were asked to give us their best professional judgment of scientific facts and issues. In some cases, this is simply a question of correct wording. In other cases, the issue was one of scientific interpretation, for example defining "heat" or using a biological classification system. In these cases, publishers had to provide the scientific bases for their materials. In short, even in cases of differing interpretation, the materials had to be scientifically valid.

The State Board of Education, the California Department of Education, and the Curriculum Commission share the same goal of accurate materials. However, not all mistakes are caught in the first review and concerned parents, teachers, and students sometimes alert publishers and the state to mistakes in instructional materials. Although publishers have acknowledged mistakes, people have often felt that the response was neither timely or adequate. To ensure that materials are accurate, the Curriculum Commission will propose a process to the State Board and Department which will allow for the continuous improvement of materials and ensure scientific confirmation of the proposed changes.

Internet Resources

Instructional materials have undergone revolutionary changes in electronic formats. Some formats has become more prevalent and new ones have been created; but the greatest expansion has been in the enhancement of instructional materials through internet access. For this adoption, many publishers listed websites as part of their program, however these websites could only be considered as part of the adopted program when publishers could guarantee that they controlled and maintained the content of the site for the life of the adopted list. Websites that fell into this category were examined as part of the submitted materials. Publisher may list and integrate into the instructional package websites where the content changes, but these websites are **not** considered part of the approved program.

ACKNOWLEDGEMENTS

Members of the Curriculum Commission who provided leadership in conducting the Science adoption process:

Eleanor Brown, Chair, Curriculum Commission, 1998-99, Assistant Superintendent, San Juan Unified School District

Marilyn Astore, Chair, Curriculum Commission, 1999-2000, Interim Assistant Superintendent, Sacramento County Office of Education

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Viken Hovsepian, Member, Science Subject Matter Committee, Teacher, Glendale Unified School District

Leslie Schwarze, Member, Curriculum Commission, Trustee, Novato Unified School District

Thanks is extended to a former Commissioner who graciously accepted the invitation and responsibility of facilitating an IMAP panel:

Maria Lopez-Freeman, Co-Director, California Science Subject Matter Project

Special thanks is also extended to the facilitator of the Content Review Panel:

Rollie Otto, Co-Director, California Science Subject Matter Project

Other member of the Curriculum Commission are acknowledged for their contributions and participation in the adoption process:

Sheri Willebrand, Math Specialist, Ventura County Office of Education

Gratitude is extended to:

Instructional Materials Advisory Panel (IMAP) members for their knowledge, commitment, and leadership in the evaluation of science instructional resources submitted for adoption:

Alexander Andrasi, University of Southern California

Carolyn Baresi, Newhall School District

Julie Bianchini, University of California, Santa Barbara

Karen Cerwin, K-12 Science Alliance Regional Director, San Bernardino

Karen Carroll, Huntington Beach Union

Mary Chafe-Powles, Mt. Diablo Unified School District

Barbara Cirincione, Apple Valley Unified School District

Liselle Clark, Stockton Unified School District

Carolyn Conway, Corona Norco Unified School District

Priscilla Cox, Elk Grove Unified School District

Lisa Daniels, Moorpark Unified School District

Paula Daniels, Los Angeles, California

Barbara Demartinis, Montebello Unified School District

Kathy DiRanna, West Ed Lab

Richard Feay, Los Angeles Unified School District

Pamela Fitzgerald, Redlands Unified School District

Mary Francis, Hollister School District

Anna Gaiter, Rowland Heights, California

Ema Gluckmann, Sacramento Unified School District

Carolyn Harants, Westminster Schools

George Hellman, Hughes Network Systems

Gloriane Hirata, San Jose Unified School District

Rita Hoots, Yuba College

Dale Hopwood, Bakersfield School District

Gregory Kelly, University of California, Santa Barbara

Joy Klopfenstein, Carlsbad Unified School District

Brinet Lee, Salinas District Resource Center

Marsha Levelle, Konocti Unified School District
Betty Long, Bella Vista Elementary
Jacque Masztakowski, Dry Creek Joint Elementary School District
Marilyn McLoughlin, North Monterey County Unified School District
Leah Melber, Palos Verdes Peninsula Unified School District
Judith Morris, Escondido Union Elementary
Diana Munoz, Eureka City Schools
Eugenia Peters, Montebello Unified School District
Kevin Reilly, Glendale Unified School District
Lynda Rogers, San Lerno Valley Unified School District
Leah Saunders, La Mesa Spring Valley School District
Victor Schneidman, Duarte Unified School District
Jody Skidmore, North Cow Creek School District
William Tarr, Jr, Los Angeles Unified School District
Nancy Thomas, Hewlett-Packard Company
Jo Topps, WestEd
Teresa Trejo-Mejia, Antioch Unified School District
Julia Whetzel, Capistrano Unified School District
Anne White, Livermore Valley Joint Unified School District
Rusty Wynn, Stanislaus County Office of Education
Margaret Young, Oak Grove School District
Jennifer Yure, Pasadena Unified School District
Janet Zierenberg, Big Oakflat-Groveland Unified School District
Anna Zucker, Orcutt Union School District

Content Review Panel (CRP) members for their expertise in science and helping to ensure that the instructional resources were accurate and based on current and confirmed research:

Carol Balfe, Independent Consultant
Joseph Chang, Parson's Infrastructure & Technology
Margaret Clark, University of California, San Francisco
Susana Deustua, Lawrence Berkeley Laboratory

Douglas Hammond, University of Southern California
Adrian Herzog, California State University, Northridge
Jennifer Matos, California State University, Northridge
Charles Munger, Stanford Linear Accelerator Center
Kevin Padian, University of California, Berkeley
James Shea, University of Wisconsin, Parkside
David Sigurdson, California State University, Dominguez Hills
Gerald Simila, California State University, Northridge
Mark Zoback, Stanford University

California Department of Education staff for their efforts to improve instructional resources for students and for ongoing support of the adoption:

Leslie Fausset, Chief Deputy Superintendent for Policy and Programs
Scott Hill, Chief Deputy Superintendent for Accountability and Administration
Sonia Hernandez, Deputy Superintendent, Curriculum and Instructional Leadership Branch
Sherry Skelly Griffith, Director, Curriculum Frameworks and Instructional Resources
Division
Wendy Harris, Director, Elementary Teaching and Learning Division
Cathy Barkett, Former Administrator, Curriculum Frameworks and Instructional Resources
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Suzanne Rios, Consultant

Christine Rodrigues, Consultant

Mary Sprague, Consultant

Tracie Yee, Staff Services Analyst

State Board of Education members for their support to the Commission and leadership in the adoption process:

Robert Trigg, President, State Board of Education

Marian Bergeson, State Board Liaison to the Commission

Marion Joseph, State Board Liaison to the Commission

Special thanks is extend to:

Micheal Rios, teacher, Montebello Unified School District, who presented the criteria to the IMAP and CRP.

Thanks to publishers/producers of instructional resources that participated in the 2000 science adoption.

2000 Science Adoption: Adopted Programs

**These programs were adopted by the
State Board on March 9, 2000.**

These Programs Are Adopted		
Publisher	Programs	Grade levels
Glencoe:	Glencoe Science Voyages	6-8
Harcourt Brace	: Harcourt Science	K-5
Holt, Rinehart, Winston:	Holt Science and Technology, Earth, Life and Physical Science	6-8
Houghton- Mifflin:	Discovery Works	K-5
McGraw-Hill	McGraw-Hill Science	K-6
Prentice Hall:	Science Explorer	6-8

These Programs Are NOT Adopted		
Decision Development:	Science 2000+	6-8
Delta:	Full Option Science System	K-6
EOA:	Earth, Ocean, Atmospheric Explorer	5, 6, 8
Globe Fearon	Concepts and Challenges in Earth, Life, and Physical Sciences	6-8
RonJon	Select Science	6-8
Scott Foresman	Scott Foresman Science	K-5
SRA/McGraw-Hill	Real Science	K-6
Videodiscovery	Life Lab	K-2
Videodiscovery	Science Sleuths	3-6
Videodiscovery	Earth	6

THESE PROGRAMS ARE ADOPTED

Publisher: Glencoe/McGraw-Hill
Title of Program: Glencoe Science Voyages: Exploring the Life, Earth, and Physical Sciences
Grade Level: 6-8

Components

This program includes student editions, teacher wraparound editions, activity kits and transparencies; teacher classroom resources including blackline masters, a laboratory manual, a number of assessment booklets, and technology components. Technology components include videodiscs, chapter videoquizzes, English and Spanish audiotapes, and interactive CD-ROMs with explorations and quizzes. Interactive lesson planners on CD-ROM and computer test banks complete the program's technology portion.

Summary

This program is recommended for adoption because it is adequately aligned to the Standards and meets the criteria. The program includes adequate hands-on investigations and experiments and does not contain extraneous content that is fundamentally contrary to the Standards. Instructional materials support teaching and learning the skills and knowledge called for in the California Science Content Standards. Sequential organization of the science program provides an adequate structure for what students should learn each year. Instructional resources contain multiple formats to assess student progress, ranging from multiple choice to a limited number of performance assessments, and adequately provide access to the Standards-based curriculum for all students. While the program contains adequate teacher support materials with specific and extensive suggestions and examples of program implementation, some of the resources are not articulated in the most efficient or effective manner for ease of use.

Science Content/Alignment with Standards;

Instructional materials adequately support teaching and learning the skills and knowledge called for in grades 6, 7, and 8 of the California Science Content Standards. While most standards receive adequate coverage in the materials, some standards receive limited treatment. The materials contain some misleading statements and some inaccuracies. Materials do include some meaningful and safe investigations and experiments. Some sections of this program are interesting and engaging to students. This program makes some connections to the history of science, technology, mathematics, reading and writing expository text.

Program Organization

Sequential organization of the science program provides an adequate structure for what students should learn each year and allows teachers to convey the science content. While the program organization materials are comprehensive, some of the resources are not articulated in the most efficient or effective manner for ease of use. The content is adequately organized and presented

in a manner consistent with providing students an opportunity to achieve the essential knowledge and skills described in the Standards.

Assessment

Instructional resources contain multiple formats to assess student progress, ranging from multiple choice to a limited number of performance assessments. These tools adequately reveal students' knowledge of and ability to apply scientific concepts, principles, theories and skills as well as the ability to apply their knowledge to understanding to some advanced concepts, principles, and theories. Assessment tools provide adequate evidence of students' progress towards meeting the Standards, and some information teachers can use in planning and modifying instruction to help all students meet or exceed the Standards.

Universal Access

Instructional materials adequately provide access to the Standards-based curriculum for all students including those with special needs, including English language learners, advanced learners, students with learning difficulties, and special education students.

Instructional Planning and Support

The program contains adequate teacher support materials with specific and extensive suggestions and examples of program implementation. Assistance is designed to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. These materials make recommendations to teachers regarding instructional approaches that fit the instructional goals. These materials provide teachers with a variety of instructional approaches.

Recommendation:

This program is recommended for adoption

Publisher: Harcourt Publishing Co.
Title of Program: Harcourt Science, California Edition
Grade Level: K-5

Components

This program includes teaching guides, student books (1-5), big books (K-2), student and teacher edition workbooks (SE and TE), teaching resources, assessment guides, transparencies, take-home books for each chapter, and nonfiction science readers and CD-ROMs for grades K-2. It also includes videos of all activities (1-5), science explorations on CD-ROMs, science news videos, and all student books on audiotape. Equipment kits and a classroom safety kit are available for each grade.

Summary

This program is recommended because it is aligned to the Standards and meets the criteria. The program includes hands-on investigations and experiments and does not contain extraneous content that is fundamentally contrary to the Standards. Harcourt Science aligns well with the California Science Standards. The program is clearly written and has accurate explanations of concepts, principles and theories that are understandable by teachers. It is rich in content and includes meaningful and safe investigations and experiments. The inclusion of Take-Home Books, Picture/Vocabulary Cards, Literature, Math and Technology Connections support and reinforce the content Standards. These Connections show students how to integrate science across the curriculum. The illustrations, pictures, graphs and charts provide all students with an opportunity to achieve the essential knowledge and skills described in the Standards. The program has a well laid out planning guide. The integral use of Graphic Organizers, Integrating Science Into The Day, Science Centers, and Reaching All Learners support conceptual learning. There are clearly stated student outcomes and goals that are measured by a wide variety of assessment tools. Harcourt Science materials provide access to the curriculum for all students, with specific strategies to reach all learners. There are a variety of pedagogical strategies for flexible grouping of students.

Science Content/Alignment with Standards

Instructional materials support teaching and learning the skills and knowledge called for in the Standards. This program makes some exceptional connections to the history of science, technology, mathematics, reading and writing expository text. Materials are adequately aligned with the Standards and do include meaningful and safe investigations and experiments.

Throughout the program, *Harcourt Science* contains quality lessons to develop science process skills. The “Process Skill Tips” and transparencies found in each unit build student knowledge and enrich the science experience. The “Investigation Challenges” found throughout the program provide more opportunities for hands-on experimentation and investigation. *Harcourt Science* provides guidance for families to become involved and take an active role in their child’s science education.

The Standards are adequately addressed and the content is interesting and engaging to students.

Instructional materials support teaching and learning the skills and knowledge called for at the grade levels in the standards. This program makes some exceptional connections to the history of science, technology, mathematics, reading and writing expository text. Materials are adequately aligned with the Standards and do include meaningful and safe investigations and experiments.

Throughout the program *Harcourt Science* contains quality lessons to develop science process skills. The Process Skill Tips and transparencies found in each unit build student knowledge and enrich the science experience. The Investigation Challenges found throughout the program provide more opportunities for hands-on experimentation and investigation. Harcourt Science provides guidance for families to become involved and take an active role in their child's science education.

Program Organization

Sequential organization of the science program provides an excellent structure for what students should learn each year and allows teachers to convey the science content efficiently and effectively. The content of the program is well organized and adequately presented in a manner consistent with providing all students an opportunity to achieve the essential knowledge and skills described in the Standards. Instructional resources are aligned with the Standards and introduce new concepts at a reasonable pace and depth of coverage. The "Planning Guide" at the beginning of each chapter provides an excellent overview of the "Lesson, Pacing, Objectives, Materials, Process Skills, Vocabulary, Resources and Technology, and Reaching All Learners." The organization of the program provides a logical and coherent structure which facilitates efficient and effective teaching and learning within a lesson, unit and year. There are clearly stated student outcomes and goals that are measurable and Standards-based. A variety of investigations, experiments, problems and applications organize the content in a logical way. Prerequisite skills and knowledge are developed before the more complex concepts, principles and theories are introduced. The use of graphic organizers requiring critical thinking skills is reinforced throughout the program. Each lesson opens with an investigation which sparks student motivation and interest.

Assessment

The program includes multiple measures of individual student progress at regular intervals: formal assessment, informal assessment, performance assessment, ongoing Assessment, student self-assessment and portfolio assessment. In addition to the multiple measures, the program provides "Unit Project Wrap-Ups" which allow the teacher to evaluate attainment of grade level knowledge and understanding of scientific concepts, principles, theories and skills. All teacher editions include Assessment Options for each chapter. These measures are exceptional in revealing student knowledge of and ability to understand and apply scientific concepts, principles, theories and skills. Assessment tools provide abundant evidence of student progress towards meeting the Standards, and information teachers can use in planning and modifying instruction to help all students meet or exceed the Standards. The program includes strategies or instruments teachers can use to determine student prior knowledge. There are performance assessments and accompanying rubrics that students can use to self-evaluate and improve the quality of their work.

Universal Access

Instructional materials contain clear and detailed guidelines for providing access to the Standards-based curriculum for all students, including those with special needs: English language learners, advanced learners, students with learning difficulties, and special education students. The “Reaching All Learners” page found at the beginning of each unit and within selected lessons provides teachers with multiple strategies to reach all learners. New vocabulary is introduced using a multitude of supportive experiences and instructional strategies. These strategies include “Vocabulary Previews, Develop Science Vocabulary, and Picture/Vocabulary Cards.” The “Extension Chapters” at the end of each grade level may provide enrichment for advanced learners and give students the opportunity to get a head start on the Standards for the following year.

Instructional Planning and Support

The program contains excellent teacher support materials with specific and extensive suggestions and examples of how teachers can implement a Standards-based science program. Assistance is designed to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. These materials make recommendations to teachers regarding a variety of instructional approaches that fit the curricular goals. The program presents clearly written and accurate explanations of concepts, principles and theories. The program addresses student common misconceptions of scientific concepts and strategies and makes suggestions for correcting misconceptions. The lesson plans provide suggestions for organizing resources in the classroom and ideas for pacing lessons as well as strategies to integrate Language Arts and Math Standards. The technical support and suggestions for the appropriate use of instruments, tools, audiovisual, multi-media, and information technology resources associated with a unit further enhance instruction. There are suggestions for activities and strategies to inform parents/guardians about the science program. References and resources for the teacher provide further study of scientific content. Student Workbooks, School-Home Connection, Take-Home Books, and Activities for Home or School allow teachers options for homework assignments to support classroom learning, and are written so that parents/guardians can readily help their children.

Recommendation:

This program is recommended for adoption.

Publisher: Holt, Rinehart, and Winston
Title of Program: Holt Science and Technology, Earth, Life and Physical Science
Grade Level: 6-8

Components

This program includes pupil and teacher editions for grades 6, 7, and 8. An alternate format of the text in English and Spanish is provided on audio CDs. Ancillary materials include lab manuals, blackline masters, CD-ROM interactive explorations, videos, transparencies, materials ordering CD-ROMs, tests, science skills worksheets, math skills worksheets, and earth science laser disk.

Summary

The Holt Science and Technology, Earth, Life and Physical Science program for grades 6 through 8 is recommended for adoption. Materials are adequately aligned with most of the Standards and include meaningful and safe investigations and experiments. The program provides a comprehensive chart identifying the California Science Content Standards and the pages where the standards are addressed in the program. Investigations and experiments appear extensively throughout the text and in ancillary resources providing clear procedures and explanations for laboratory experiments, that adequately promote understanding of scientific principles. Scientific evidence within the content is accurate and examples are based on up-to-date research. Mathematics is well integrated into the text, enhancing practice in quantifying relationships and solving science problems.

The Chapter Organizer is the key to teacher organization with standards and student objectives/outcomes clearly identified. Multiple measures of assessment are provided throughout the text and ancillaries, and suggested rubrics are included. Suggestions for advanced learners are available throughout the text and ancillaries. Numerous opportunities for the teacher to modify the content for Sheltered English learners are highlighted for quick reference. Instructional planning is supported by a myriad of suggested strategies and supplementary materials.

Science Content/Alignment with Standards;

The program is adequately aligned with Standards, including meaningful and safe investigations and experiments. Some of the standards are exceptionally well addressed such as grade 6 standards 1b, 1c, 1g, 6c, 7a, 7f, grade 7 standard 7b; and grade 8 standards 4a, 4c, 4e. However, some standards are minimally met, for example grade 6 standards 2b, 3a, 3d, 4a, and 7g; grade 7 standards 4a, 4c, 4d, 4e, and 7d; grade 8 standard 4e.

Instructional materials support both the teaching and learning of the skills and knowledge called for at grade levels 6, 7, and 8. Units are presented by clearly stating the student goals with engaging introduction activities, followed by content reading. The program supplies lab activities, references to resource books and technology that support content within each chapter. Investigations and experiments appear extensively throughout the text and in ancillary resources. The “LabBook” and “QuickLabs” provide clear procedures and explanations so that

investigative and experimental skills are learned in the context of the Standards. Safety issues are appropriately addressed at the beginning of each “LabBook” and within individual laboratory exercises, so that these exercises can be safely conducted. Most laboratory exercises can be conducted inexpensively, and the text and ancillary materials offer suggestions for alternative, less costly, materials where appropriate. Laboratory experiments adequately promote understanding of scientific principles. The program offers some opportunities for students to gain knowledge through inquiry.

This program does indicate where the standards are addressed by providing a chart listing the California Science Content Standards and the pages where they are addressed. In addition, each Chapter Organizer provides evidence of standards that are addressed within each unit and includes points of use throughout all teacher editions. Content that draws upon current scientific research to support science concepts, principles and theories appears to be up-to-date.

This program contains many exceptional connections to the history of science, technology, mathematics, and reading and writing expository text. The “Science, Technology and Society” sections in the text provide connections between science and technology that support understanding of the standards. Mathematics is particularly well integrated into the text by providing practice to quantify relationships and solve science problems. The ancillary resource, *Math Skills for Science*, provides both a review of math skills and specific math applications in all science areas.

Program Organization

Sequential organization of the science program provides an excellent structure for what students should know and be able to do each year and allows teachers to convey the science content efficiently and effectively. Each lesson is built around the following sections: Focus, Motivate, Teach, Extend and Close. The content is well organized and is presented in a manner consistent with providing all students an opportunity to achieve the essential knowledge and skills described in the Standards.

The program provides a “Chapter Organizer” that is the key to program organization. The standards to be addressed are clearly listed in the organizer along with student objectives. The organizer, as well as the teacher wrap, cross-references all additional resources that support the Standards, including Standards at points-of-use throughout all teacher editions.

The Table of Contents includes a listing of “Investigations!”, “QuickLab”, and “LabBook” activities, Chapter Organizers and is referenced throughout the teacher edition. In addition, each text includes a complete glossary and index.

Assessment

Instructional resources contain multiple measures to assess students’ knowledge and ability to apply scientific concepts, principles, theories and skills. An excellent example of meeting this criterion is the “Review and Assessment” column in the “Chapter Organizer,” at the beginning of each unit. Assessment tools provide evidence of students’ progress towards meeting the Standards and information teachers can use in planning and modifying instruction to help all students meet or exceed the Standards. The *Assessment Checklists and Rubrics* contain multiple

ideas for teacher assessment, student self-assessment, and scoring. The Interactive Explorations CD provides built-in assessments, and *Chapter Tests with Performance Based Assessments* contains appropriate hands-on evaluations.

Universal Access

Instructional materials adequately provide access to the Standards-based curriculum for all students, including students with special needs: English language learners (ELL), advanced learners, students with learning difficulties, and special education students. The suggestions for addressing the needs of advanced learners are available throughout the text and resource ancillaries; however, the ancillaries are not cross-referenced for advanced learners in the teacher wraps. There are numerous opportunities to modify the content for English language learners throughout the chapters. However, there appears to be no modifications for ELL students in the “LabBook” or other ancillary lab books. The Earth Science Laser Disk and the *Guided Reading Audio CD Program* of the text are both available in English and Spanish to support ELL or students with reading difficulties.

Instructional Planning and Support

The program contains adequate to excellent teacher support materials including specific and extensive suggestions and examples of how teachers can implement a Standards-based science program. Assistance is designed to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. Opportunities to correct “Misconceptions” are liberally placed in the teacher wrap with an “alert” logo. Suggestions for lesson plans and pacing are provided in all Chapter Organizers, as well as in the “LabBook” activities and the *Inquiry Labs* ancillary. The Master Materials list for “Quick Labs”, “Investigations” and “LabBook” activities is available at the beginning of each text, separated into consumable and non-consumable materials with amounts needed for each student group. Multi-media connections are referenced in the Chapter Organizers and at points of use throughout the teacher editions, including the English/Spanish Laser Disk and CNN Video. Safety issues are addressed at the beginning of each “LabBook” section as well as with appropriate “LabBook” activities. These materials make recommendations to teachers regarding instructional approaches that fit the instructional goals, including alternative groupings.

Homework suggestions are prevalent and are provided within the review section of the text, ancillaries and teacher wrap. Suggestions in the teacher edition wrap would be more accessible to parents if they were printed in the student editions. “SciLinks Internet” connections provide additional information for parents and students to access at home, but many websites are currently under development.

Printed suggestions for informing parents about the science program are not present. In addition, electronic demonstrations for teachers that depict appropriate lab techniques, experiments and teaching suggestions are not available.

Recommendation:

This program is recommended.

Publisher: Houghton Mifflin Company
Title of Program: Science DiscoveryWorks © 2000
Grade Level: K-5

Components

This program includes student editions, poster books, activity cards, picture cards, teaching guides, teacher resource books, workbooks, and reading support packages that contain concept map transparencies, science transparencies, Internet Web site, videotapes, CD-ROM programs, test generator, song tapes, and science equipment kits.

Summary

Houghton Mifflin Science DiscoveryWorks is recommended for grades K-5, because it is aligned to the State Standards. The criteria categories of program organization, assessment, universal access, and instructional planning and support are essentially met. The program includes adequate hands-on investigations and experiments and does not contain extraneous content that is fundamentally contrary to the Standards.

Science Content/Alignment with Standards;

The materials are aligned with the Standards for grades levels kindergarten through 5 and include some meaningful and safe investigations and experiments. This program adequately presents accurate content that is interesting and engaging to students. This program makes some connections to the history of science, technology, mathematics, reading and writing expository text that are adequate.

Program Organization

Sequential organization of the science program provides an adequate structure for what students should learn each year and allows teachers to convey the science content efficiently and effectively. The scope of the program provides an overview of the K-5 program. The Unit Overview and Unit at a Glance provides the major concepts for the unit. The Chapter Overview provides the content overview for the chapter. Tips from Teachers provide practical advice for the unit. "What is Scientific Thinking?" and "Think Like a Scientist/What is Scientific Thinking?" assists teachers in addressing the Investigation & Experimentation standards. The content is adequately organized and presented in a manner consistent with providing most students an opportunity to achieve the essential knowledge and skills described in the Standards.

Assessment

Instructional resources contain adequate measures to assess student progress. These measures adequately reveal students' knowledge of and ability to apply scientific concepts. This program utilizes multiple measures for assessment including written tests, performance assessment, and portfolio assessment. Additionally, the materials provide guiding questions for monitoring student investigations. Focus and discussion questions for student understanding of reading are provided in the program. A baseline assessment addresses the students' prior knowledge and data from this assessment is used for follow up and re-teaching at the end of the investigation.

While re-teaching strategies address the investigation, they minimally address the concepts in the lesson and do not support redirecting instruction of the concept. In addition, there appears to be few suggested assessment strategies for GATE, ELL, or at-risk readers. Information for teachers to apply the assessment data in planning and modifying instruction to help all students meet or exceed the Standards needs to be more explicit. Although scoring rubrics are provided for the teacher, the program lacks opportunities for students to use rubrics to improve their work.

Universal Access

Instructional materials minimally provide access to the Standards-based curriculum for students with special needs, including English language learners, advanced learners, students with learning difficulties, and special education students. Transparencies help organize conceptual understandings in grades 3 through 5. Several exemplary strategies are used to address the needs of English language learners, such as pairing native English speakers with English Language Learners and using visuals and diagrams. There are few inclusion activities and some of these activities are superficial. No research is presented to support the use of any of the multiple modality suggestions for “Meeting Individual Needs.”

Instructional Planning and Support

The program contains adequate teacher support materials such as “Teacher Resource Books” and other material as cited in program organization. There are numerous suggestions, examples, and a variety of instructional approaches for teachers to implement a Standards based science program.

Strategies to assist students’ conceptual development could be improved. Other than “Reteaching Activities,” opportunities to build on student understanding or to correct student misunderstanding as evidenced in their assessment data, could not be found. Although “Common Misconceptions” are listed in the “Chapter Overview” of every chapter in each grade level, there are no specific strategies to address and correct these misconceptions other than teaching the lesson as directed.

Instructional support should also include stronger connections for English language learners. “Home-School Connections” in “Teacher Resource Books” at all grade levels are available only to English-speaking parents. Suggested use of realia is to be commended; however, such realia is not noted on the materials list.

The Web site is currently under construction and not available.

Recommendation:

This program is recommended for adoption.

Publisher: McGraw-Hill
Title of Program: McGraw-Hill Science
Grade Level: K-6

Components

This program contains pupil and teacher editions, big books (grades K-2) which are all available in English and Spanish. The program also includes lab materials and technology, including CDs, CD-ROMs, videodiscs, and videos. Additional components include assessment and practice pieces and teacher support materials.

Summary

This program aligns with the Standards and meets the criteria. The program includes hands-on investigations and experiments and addresses the five criteria in a comprehensive manner with exceptions as noted. Most grade level standards are addressed with a variety of expository text, diagrams, illustrations, and investigations. The strengths of the program include program organization, assessment, universal access, and instructional planning.

Science Content/Alignment with Standards;

Instructional materials support teaching and learning the skills and knowledge called for at the grade levels in the standards. Examples include grade 2, standard 1c; grade 4 standards 1a-f; grade 6 standards 3a and 4c. Materials are aligned with the standards and include meaningful and safe investigations and experiments. For instance, there are activities that fully align with the grade 1 standard 4b and grade 3 standard 5c. However, some standards are minimally supported such as grade 2 3a; grade 5 1c; and grade 6 5d. This program presents content that draws upon scientific research, however the program is weak in providing the conceptual background for “evolution” in grades 5 and 6. This may adversely affect students’ understanding of the concept in later grades. The program is interesting and engaging to students. This program helps students make connections to the history of science , technology, mathematics, reading and writing expository text.

Program Organization

Sequential organization of the science program provides a structure for what students should learn each year. Topics are covered in the early years that prepare the students for the standards that follow in higher grades. The program provides a structure for teachers to convey the science content efficiently and effectively. The student lessons are well organized. Each topic begins with materials that stimulate student interest and discussion. Each ends with a review, a test and Black Line Masters (BLM) for practice . Topics in the teacher’s edition are organized by materials, plan ahead tips, and comprehensive instructional suggestions.

Assessment

The program resources contain multiple measures to assess student progress. These measures monitor students’ knowledge of and ability to apply their knowledge to understanding advanced concepts, principles, and theories. Each chapter begins with tools to assess prior knowledge. Daily lessons also provide assessment tools. “Topic Features” include assessment questions.

The series includes visuals, diagrams, charts, activity cards, and “CLOZE” tests to facilitate assessment. Assessment tools provide abundant evidence of student progress towards meeting the Standards and information for teachers to use in planning and modifying instruction to help meet student needs. Authentic assessment in “Quick Labs” offers opportunities for investigation and experimentation.

Universal Access

Instructional materials provide access to the Standards-based curriculum for all students including those with special needs, English language learners (ELL), advanced learners, students with learning difficulties, and special education students. “Be A Scientist” is a component of every section that introduces process skills in a realistic and interesting way. The science words and definitions provide teachers the tools to introduce new vocabulary words. The “Topic Content Development” pages within each unit include a focus question, visual aids to help students develop the content Standards, and highlighted vocabulary words to help the reader find the definitions in context. Within the program there is also support for ELL and opportunities for multilevel differentiation. “Science Leveled Readers” and videos help access information for all learners.

Instructional Planning and Support

This program contains teacher support materials with specific and extensive suggestions and examples of how teachers can implement a Standards-based science program. Assistance is designed to help teachers implement the program in a way that ensures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. The daily lesson plans are consistent and follow a three-step lesson plan. “Unit Organizer” pages help the teacher plan an effective Standard-based program. The equipment and supplies used in the program are readily available. Throughout the program there are caution statements and suggestions to promote classroom safety in doing hands-on investigations. Every grade level offers Black Line Masters, suggestions for activities and strategies to inform parents/guardians about the science program. “School-To-Home Activities” books at each grade level are available. Videodisc barcodes should be added to the Teachers Editions, at points of use.

Recommendation:

This program is recommended for adoption.

Publisher: Prentice Hall
Title of Program: Science Explorer: Focus on Earth, Life, and Physical Science, California Edition
Grade Level: 6-8

Components

This program includes student and teacher editions with lab manuals, skills worksheets, and equipment kits. Technology features include CD-ROMs, a web site, Spanish/English audiotapes, videotapes, videodiscs, transparencies and testing software.

Summary

Prentice Hall: Science Explorer is recommended, because the program is adequately aligned with the Science Content Standards and Criteria. The instructional planning and support materials sometimes support teaching and learning the skills and knowledge called for at each grade level in the Standards. The Investigations and Experimentation strand is adequately met so that students understand the scientific method. Although this program contains some extraneous materials, there is a rich supply of text materials and resources.

Science Content/Alignment with Standards

Instructional materials support teaching and learning the skills and knowledge called for at the grade levels of the Standards. Materials do include some meaningful and safe investigations and experiments. This program presents content that draws upon current scientific research. The material is interesting and engaging to students and makes connections to the history of science, technology, mathematics, reading and writing expository text that are exceptional.

Program Organization

Sequential organization of the science program does not provide adequate structure for what students should learn each year and does not help teachers convey the science content efficiently and effectively. The content is not presented in a manner consistent with providing all students an opportunity to achieve the Standards. Given the extent of the materials submitted, the standards-based pacing guide is necessary to enable the teacher to introduce new concepts at a reasonable pace and depth of coverage. Also, the pacing guide ensures that the volume does not detract from the ability of teachers to teach readily and students to learn thoroughly the content specified in the standards.

Assessment

Instructional resources do contain measures to assess student progress. These measures are minimally adequate in revealing students' knowledge of and ability to apply scientific concepts, principles, theories and skills. Assessment tools provide evidence of students' progress towards meeting the Standards, and information that teachers can use in planning and modifying instruction to help all students meet or exceed the Standards. Performance assessment rubrics emphasize model production and limit concept development for revealing students' knowledge of or progress towards meeting the Standards.

Universal Access

The portion of the instructional materials which are standards-based do provide access for all students including those with special needs: English-language learners, advanced learners, students with learning difficulties, and special education students.

Instructional Planning and Support

These materials are insufficient in helping the teacher to implement the program in a way that ensures the opportunity for all students to learn the essential skills and knowledge called for in the standards. These materials provide inadequate recommendations to teachers regarding instructional approaches that fit the instructional goals and /or provide teachers with a variety of instructional approaches. The large volume of extraneous materials may detract from the ability of teachers to teach readily and students to learn thoroughly the content specified in the standards. A pacing guide for teaching the sixth, seventh and eighth grade would facilitate implementing core coverage of standards.

Recommendation:

This program is recommended for adoption.

THESE PROGRAMS ARE NOT ADOPTED

Publisher: Decision Development Corporation
Title of Program: Science 2000+
Grade Level: 6-8

Components

The core program includes CD-ROMs (site licensed), videodiscs, teacher resource guides (preprinted lesson plans, assessments and answer keys), student activity books for each unit, magazine kits, and implementation guides with parent information.

Summary

This program is not recommended because it is not aligned to the Standards at the specific grade levels and does not meet the criteria. Science 2000+ is designed to be flexible, but it is this flexibility that creates some of its inherent flaws. This middle school program has the unique feature of the “storyline”. The storyline structure is the “glue” that provides context and connections for understanding and learning at each grade level. These storylines are the essence of the program, however, it is necessary to remove the storylines in order to mix and match activities from different units to meet the California Science Standards. In short, in meeting the standards the program cannot retain its coherency, and in retaining its coherency the program cannot meet the standards.

Science Content/Alignment with Standards;

Instructional materials do not adequately support teaching and learning skills and knowledge called for in the California Science Standards at grade levels 6, 7, and 8. Materials do not sufficiently align with the Standards and do not meet the science content criteria. This program marginally presents accurate content that draws upon limited current scientific research.

The standards have two dimensions—the scientific content and the grade level specificity at which the content should be taught. The list of evidence provided by the publisher of this program does not demonstrate appropriate alignment of the program content with the standards specified at each grade level. Content standards for each grade level are not adequately supported by topics, concepts, lessons, activities, investigations, examples and/or illustrations as required.

Program Organization

Sequential organization of the science program minimally provided a structure for what students should learn each year and how teachers should convey the science content efficiently and effectively.

The content is organized and presented in a manner inconsistent with providing all students an opportunity to achieve the essential knowledge and skills described in the Standards. The publisher integrated the magazine series, “Odyssey,” into the Science 2000 program, but specific

references in the teacher lesson plans were difficult to locate. The organizational system was found to be confusing notwithstanding a design to be flexible. Navigating through its many “links” often brought the user back to the initial starting place. Such is the case with the sun graphic in unit 74. Vocabulary definitions with “hot links” were defined by two or three words referring back to each other in a circular manner. In unit 84, the definition for “earthquakes” lead to “seismic waves” and its definition lead to “P waves” which lead back to “earthquakes.” A similar problem is found in unit 73 for definitions for “mass” and “gravity”. The program lacked a component that safeguards against users “looping” into a recursive cycle.

The program is not fully accessible with the prevailing technology in the field. Despite the best efforts of technical support, the program’s content is not consistently and fully available. It is unclear how this software would be a reliable, easily accessible program.

Assessment

Instructional resources contain measures to assess student progress. Opportunities for students to demonstrate their mastery of science process skills are provided. However, assessment tools do not adequately reveal student knowledge of and ability to apply scientific concepts, principles, theories.

Universal Access

Instructional materials inadequately provide access to the Standards-based curriculum for all students including those with special needs, including English Language Learners, advanced learners, students with learning difficulties, and special education students. Some videos on the CD included a Spanish track. While there is an attempt to address students with special needs in the “Teacher Tips” of the *Implementation Guide*, little direction is provided to the teacher for where and when to use specific strategies.

Instructional Planning and Support

The program does not contain adequate teacher support materials with specific and extensive suggestions and examples of how teachers can implement a Standards-based science program. Assistance is minimally designed to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. These materials minimally provide teachers with a variety of instructional approaches.

Recommendation:

This program is **not** recommended for adoption.

Publisher: Delta Education, Inc.
Title of Program: Full Option Science System
Grade Level: K-6

Components

This modular, kit-based program includes hands-on, print and Internet technology. Each kit includes a Teacher Guide with assessment, teacher preparation video, and science equipment. For grades 3-6, kits have a package of science stories developed for each module.

Summary

This program is not recommended for adoption because it does not support teaching and learning the skills and knowledge called for in the standards at each grade level. This program does include meaningful hands-on investigations and experiments. It can be used as a supplemental program to help students master those standards that are addressed and particularly those that address the investigation and experimentation standards. The program adequately connects to the history of science, technology, and mathematics, reading and writing expository text in grades 3 through 6. The K-2 program contains limited materials to meet the criteria which calls for the study of the historical development of scientific thought and reading.

The program is not organized so that a teacher can teach the California content standards at the grade levels in which those standards are required. However, the program does possess an internal system of organization that holistically addresses many of the standards within the K-6 grade span. Instructional resources provide a variety of instructional approaches, multiple measures for assessment, and suggestions for universal access based on current and confirmed research. The teacher support material fosters the opportunity for all students to learn science.

Science Content/Alignment with Standards:

By the publisher's own admission, instructional materials do not always support teaching and learning the skills and knowledge called for at the grade levels as directed by the standards. To map the program to the standards, the publisher addresses some grade-level standards by using materials from other grade levels which compromises the integrity of the program. For example, to meet the kindergarten standard 3a, the program calls for using materials from the Grades 1/2 Pebbles, Sand, and Silt module and the Grades 5/6 Landforms module. Also, to attain grade 2 standard 1f, teachers and students would have to use the Grades 3/4 Magnetism and Electricity module. In addition, to attain the grade 3 standard 2a, classroom activities would have to rely on the Grades 5/6 Solar Energy module. The publisher admits that the program does not address certain standards. At grade 5, neither standard 2d nor 4d is supported by the materials. At grade 6 standard 1g is not addressed in the program.

The CRP and IMAP panels found that other standards are not adequately addressed. For example at grade 5 standards 5b and 5c, the program addresses solar system and gravity maintaining orbits by presenting a table of planets. However, this does not provide an adequate depth of understanding. Also, for grade 5 standard 1c is superficially addressed by simply mentioning that gold, copper, and iron are all elements without referencing their properties.

While the program does not meet the grade-level standards, it does include some meaningful and safe investigations and experiments. This program makes many connections to the history of science, technology, mathematics, and reading and writing expository text.

Program Organization:

Because the program is not aligned to the standards, the sequential organization of the science program does not provide a structure which allows teachers to convey the science standards. However, the program does possess an internal system of organization and addresses many of the standards. The content matrix in modules shows articulation between grade-level concepts in life, earth, and physical sciences. Module matrices provide a well-organized structure that enables students with the opportunity to build an understanding of science concepts. The module matrices show an overview with concepts, thinking processes, connections to other disciplines, stories, and technology. Nonetheless, the internal structure of the program is inconsistent with the standards, and the integrity of the program is undermined when attempting to align the materials to specific grade-level standards.

Assessment:

Although the program does not align to all grade-level standards, assessment is treated in depth in this program. The “Assessment Folio” provides an explanation and rationale for formative and summative assessments, which measure content knowledge, conducting investigations and building explanations. This program provides multiple measures including teacher observation, student data sheets, performance assessments, portfolio assessments, and multiple choice. These measures are helpful in revealing students’ knowledge of and ability to apply scientific concepts. In addition, the program provides detailed rubrics with examples of students’ words. There is ample information teachers can use in planning and modifying instruction to help all students. The “Assessment Folio” provides diagnostic strategies to make decisions about instruction. The “End-of-the-Module” assessment is a performance assessment that students can use to evaluate and improve the quality of their own work.

Universal Access

Although not aligned to the standards, instructional materials provide access to science curriculum for all students including those with special needs, English language learners, advanced learners, students with learning difficulties, and special education students. Important attributes include multi-cultural perspectives through Science Stories, hands-on investigations with debriefing through small & large group discussions and cooperative work groups. Students’ prior knowledge is assessed and developed in investigations. Materials provide access to all students including disabled students. All modules have Spanish translations.

Instructional Planning and Support:

The teacher support materials contain suggestions and examples of how teachers can implement the program. Assistance is designed to help the teacher implement the program in a way that ensures the opportunity for all students to learn science skills and knowledge. Teacher background is treated in depth and presented in an engaging way. “Suggested Teaching” sequences are provided for each module. Strategies for organizing students and materials are provided in every module. Strategies to correct student misconceptions are provided. The

program provides information to inform parents about this each module in the "Getting Ready" section of each investigation. In addition, there is a home/school connection for each investigation. The website provides opportunities for students and families to learn together. These materials make recommendations to teachers regarding instructional approaches that fit the instructional goals.

Recommendation:

This program is **not** recommended for adoption.

Publisher: EOA Scientific Systems, Inc.
Title of Program: Earth-Ocean-Atmosphere Explorer
Grade Level: 5, 6, 8

Components

This program includes a CD-ROM for Windows and MacIntosh, printed teacher's guide /user's manual, and a website.

Summary

The EOA Explorer program is not recommended for adoption at Grades 5, 6, and 8 because it is not aligned to the Standards at the specified grade levels and does not meet many of the criteria. The Investigations and Experimentation strand is not adequately covered and lacks hands-on activities. The program includes numerous inaccuracies. According to the publisher the reading level and vocabulary are designed for older students, and therefore may be too difficult for the intended grade levels.

The program organization does not provide a logical and coherent structure, which facilitates the effective and efficient instruction of the grade level standards. It is difficult to discern which materials are appropriate for each grade level. Student outcomes and goals aligned to the Standards are not clearly defined. Multiple measures to assess prior knowledge or student progress are not provided and rubrics are not available. Instruction materials do not provide adequate access to the Standards-based curriculum for all students including those with special needs. The program does not contain adequate teacher support materials with specific and extensive suggestions and examples of how teachers can implement a Standards-based program, deal with misconceptions, use assessment data, or inform parents.

EOA provides an innovative approach to teaching science by integrating earth, ocean and atmospheric studies with computer simulations and activities. The graphics and animations are well done and provide students with unique insights into the world of science.

Science Content/Alignment with Standards

Instructional materials do not adequately support teaching and learning the skills and knowledge called for at grade levels 5, 6, and 8 in the Standards. It is difficult to find specific concepts to support the teaching of the Standards because there is no comprehensive index. The volume of material is so great that accessing specific concepts would be extremely difficult for students and teachers. The program is not aligned with the California Science Content Standards in several areas. Standards that are not adequately covered include: grade 5, standards 1e, 1f, and 6d; grade 6 standards 2c and 7d; grade 8 standards 1c, 2c, 3e, and 9b. The contents of each screen range from minimal to excessive amounts of information. Both extremes may make it difficult for students to adequately master specific Standards. The standards for California geology, grade 6 1f and 2a, is mostly covered in the appendix, which may be too difficult for many students.

Investigations and experiments are a weakness of this program. Investigations are computer driven, point and click variety and do not include any hands-on experiments. Thus the issues of safety and cost are irrelevant. The program does not develop experimental skills such as

designing, selecting appropriate tools, measuring, constructing graphs, and analyzing data as required by the Investigation and Experimentation strand. Students have little opportunity to use the scientific method in the experiments because they can guess their way through many investigation activities.

The program provides up-to-date information to support science concepts, principles and theories, however, some content is not clear such as the discussion of “vertical mixing.” Some examples of inaccuracies include: density is incorrectly stated; a graph is missing a label for the y-axis; and steam is presented as an illustration of cloud formation.

The program includes adequate opportunities for students to study connections between science and technology that support understanding of the Standards, including societal impacts/issues, and the interdependence and distinction between technology and science. While the program attempts to make the science content interesting and engaging to students, some exercises resemble games rather than scientific inquiry. The illustrations, movie clips, and investigations are visually stimulating, but the resolution is poor. The main lessons and appendices are presented with scrolling text and static illustrations. A problem may arise when students continue to work with the CD program and this presentation format becomes repetitive and fails to further stimulate the students.

The materials adequately provide opportunities for students to increase their knowledge of science through study of historical development of scientific thought and examples of the lives, work, and contributions of scientists as they contribute to the understanding of the Standards. In contrast, minimal practice is provided in using mathematics to quantify relationships and solve science problems using mathematics. Many opportunities to graph data are available, yet many of these graphs are automatically plotted or can be plotted through random data placement. Directed practice for students to plan and construct graphs is not present.

Scientific terms and academic vocabulary are adequately used and usually accurately defined. Newly introduced terms are highlighted and linked to the glossary. The program assumes that the students have a working knowledge of many terms and concepts that might be new to most grade 5, 6, and 8 students. High reading levels of the “Main Lessons” may not be suitable for grades 5, 6, and 8. According to the publisher, appendices are suitable for students in grades 7-12. Opportunities for writing expository text are very limited.

Although the program references a publisher maintained web site, the panel was not able to review the web site because it is “under construction.”

Program Organization

Sequential organization of the EOA program does not provide an adequate structure for what students should know and be able to do each year and does not allow teachers to convey the standards based science content efficiently and effectively. This program is designed for students to progress directly through the CD. Opportunities for guided review are minimal. Although the program organization is logical, it does not facilitate efficient and effective teaching and learning within a lesson, unit or year aligned with the Standards. For example, to cover grade 6 standards 3a-d, concepts from six chapters and three appendices must be accessed. The program does not

include a reference to the Standards or an index to the content to allow for this flexibility. This tends to undermine the logical sequencing of in-class lessons.

Tables of contents and content summaries are present, but only aid in the navigation of the CD program and are not useful for identifying specific concepts in the Standards. The student goals stated in the teacher's edition for each chapter are not aligned with the Standards. Teachers must synthesize their own short and long term goals to properly address the Standards. Indices are not present. The glossary and appendix links are available to complete student comprehension of concepts discussed on various screens. Parent/guardian connections are not mentioned. Few homework suggestions are provided.

This program appears to be self-paced and self-evaluating; however, many screens call for a discussion in conjunction with the screen topic in order to enhance student understanding and application. Self-pacing and discussion grouping seem to be mutually exclusive strategies.

This program is based on sound and current content, develops some investigative skills, and involves some scientific inquiry.

Assessment

Assessment tools provide minimal evidence of students' progress towards meeting the Standards and do not contain adequate multiple measures to assess student progress. Performance assessments and accompanying rubrics are not available for students to use in evaluating and improving the quality of their own work. Information teachers can use in planning and modifying instruction to help all students meet or exceed the Standards is not present.

Strategies and assessment instruments teachers can use to determine students' prior knowledge are not present. The formal measure of individual student progress provided in the program is a few multiple-choice questions and answers per chapter. Using these few questions to address the California Science Content Standards is inadequate to evaluate students' knowledge, understanding, comprehension, or application. Opening questions are shown in the text and a 'congratulations' screen appears if you succeed with some investigations. The program provides some opportunities for students to self assess their progress within exercises by comparing their results with program supplied answers.

Universal Access

Instructional materials do not provide adequate access to the Standards-based curriculum for all students including students with special needs: English language learners, advanced learners, students with learning difficulties, and special education students.

The program contains no suggestions or references based on current and confirmed research for ways to adapt the curriculum and the instruction to meet students' assessed special needs. 'Exercises' are rated from simple to complex; however, strategies to help students who are below grade level in science and strategies to help students with reading difficulties understand the science content are not present. Advanced level content is available through the text-based, non-interactive appendices; however there are no suggestions for advanced learners that are tied to

the Standards to allow students to study content in greater depth. Furthermore, the appendices are of such high reading levels that students of grades 5, 6, and 8 may have difficulty using them.

Instructional Planning and Support

The program does not contain adequate teacher support materials with specific and extensive suggestions and examples of how teachers can implement a Standards-based science program. According to the publisher, EOA Explorer is intended to “introduce the student to the broad sweep of concepts in the earth sciences.” Although the teacher is expected to access outside sources in order to develop and present materials that fill in details and gaps of this program, adequate guidance to the teacher is not provided. The publisher states that “applications of the broad principles” are left to the teacher to research, develop and present. This may be a time consuming endeavor and may require extensive teacher preparation.

Few recommendations are made to teachers regarding instructional approaches that fit the instructional goals. Strategies to address and correct students’ common misconceptions of the scientific concepts are not present. Some suggestions for student driven groupings are embedded within individual screens, however, the program appears to be individually paced. The program does not provide suggestions for using student assessment data for instructional planning purposes.

The Teacher Edition sometimes provides inadequate and muddled information. No list of materials is provided in the Teacher Edition. The materials needed for the one large project the “backyard weather station” can only be obtained by viewing pictures of the various components of the project on the CD and then writing them down. Technical information, installation instructions and technology resources associated with accessing various components of the CD are contained in the Teacher Edition. The program does not include demonstration electronic resources such as videos and CDs for teachers at each grade level, depicting appropriate laboratory techniques, experiments, and teaching suggestions. Suggestions for activities and strategies to inform parents/guardians about the science program are not provided. No homework assignments that support classroom learning, written so that parents/guardians can easily help their children are suggested. The inability to download and print material from the CD hampers at-home learning.

However, most explanations of concepts, principles and theories are clearly written, accurate and understandable by teachers. References and resources for the teacher to provide further study of scientific content are provided.

Recommendation:

This program is **not** recommended for adoption.

Publisher: Globe Fearon
Title of Program: Concepts and Challenges in Earth, Life, and Physical Science
Grade Level: 6, 7, and 8

Components

This program includes student and teacher editions of text and laboratory manuals. The program also has a teacher resource manual with review worksheets, enrichment worksheets, evaluation materials, and foreign language supplement-Spanish.

Summary

The Globe Fearon program “Concepts and Challenges in Earth, Life, and Physical Science, Grades 6, 7, and 8” is not recommended. The program is aimed at English language learners, students with learning difficulties, and special education students. The CRP and IMAP concur that the program does not meet the Science Content Standards and Criteria. The expository text is not presented in interesting and engaging ways to students. The program does not provide sufficient opportunities for students to develop thorough understanding of scientific concepts, investigative skills and judgment, and logical thinking. This program could be used as a transitional supplement for special needs students.

Science Content/Alignment with Standards

Instructional materials do not support teaching and learning the skills and knowledge called for at each grade level in the Standards. The program materials are not completely aligned with the Standards. For example, at grade 6, the materials do not mention the California landscape, as required for standard 2a. Also, the materials do not fully explain the transference of energy as needed in standards 3a and 3b. In another example, at grade 7, the materials do not include a discussion of how species became extinct when environments change, which is necessary for standard 3e. Also, at grade 8, the materials do not mention the role of gravity in forming and maintaining planets, a necessity for understanding standard 2g, .

Other standards are only minimally addressed and presented primarily as definitions of terms. At grade 6, the program does not explicitly discuss convection currents in oceans, as called for in standard 4d. At grade 7 the program does not adequately discuss the life cycles and reproduction of sexual and asexual organisms, as stated in standard 2a. The materials does not make explicit the connection of genetics to evolution, as called for in standard 3a. At grade 8, the program does not adequately discuss elastic forces due to tension or compression in matter, as called for standard 2d..

Scientific terms and academic vocabulary are appropriately used and accurately defined. Each chapter in the textbook presents scientific terms and new vocabulary, offering definitions and pronunciations. However, science content is not introduced in ways that are interesting and engaging to students. For example, concepts are often not developed such as photosynthesis or revisited such as Newton’s Second Law.

Each unit provides multiple opportunities for investigations at the end of each lesson and in the Laboratory Programs. These investigations can be conducted with inexpensive and readily-available materials. However, the investigations offer limited opportunities for students to

develop investigative skills and judgment, logical thinking, and understanding of science principles, or for students to develop the ability to gain knowledge through observation, inquiry, and experiment with attention to organization, interpretation, and presentation of data.

The Globe Fearon program partially supports the English-Language Arts and the Mathematics Content Standards for California Public Schools. The Globe Fearon expository texts support reading word analysis, vocabulary development, and reading comprehension for connecting and clarifying main ideas. This program also partially supports the number sense and measurement strands of Mathematics Standards.

Program Organization:

The program is logically organized and introduces topics sequentially. Each lesson is introduced by a question and presented in two pages. The program introduces new content at a reasonable pace. The content does not provide opportunities for all students to achieve the essential knowledge and skills described in the Standards. The materials provide a “table of contents” and “study hint” but this information does not tie together key ideas and thus provides an inadequate overview for students to understand the scientific concepts and skills to be developed. There are no explicit opportunities designed to help parents participate in the science program.

Assessment:

Assessments are prevalent throughout the program, however they are limited in scope. One of the strengths of this program is consistent use of assessment tools introduced at regular intervals: “Check, Apply, Lesson Review, Unit TechTerm Review, Unit Challenges and Unit Tests.” “Written Unit Tests” emphasize the recall of information, rather than knowledge of scientific concepts, principles, theories, and skills. The unit assessments do not include explicitly labeled performance assessments with accompanying rubrics.

Universal Access:

The Globe Fearon instructional materials are aimed at English language learners, students with learning difficulties, and special education students. A Spanish language supplement is also provided. This program offers students with reading difficulties opportunities to read science content with manageable lesson size, predictable format, controlled reading level, coverage of new vocabulary, and clearly stated learning objectives. This program does not provide sufficient suggestions for all students to study Standards-based science content in greater depth.

Instructional Planning and Support:

The Globe Fearon program contains limited teacher support materials with suggestions and examples for implementing a standards-based science program. It lacks examples of students’ common misconceptions of scientific concepts and does not provide strategies to address and correct these misconceptions. Teacher resource materials provide lesson plans for organizing resources in the classroom, lists of required equipment and supplies, and safety procedures, but lack pacing suggestions. These teacher support materials do not provide suggestions for how to use student assessment data within the program for planning purposes. They also lack strategies to inform parents/guardians about the science program.

Recommendation: This program is **not** recommended.

Publisher: RonJon Publishing, Inc.
Title of Program: Select Science
Grade Level: 6-8

Components

Select Science is a modular science curriculum with both teacher and student editions. Accompanying each book is a CD containing animations and the set-up of apparatus for selected experiments. Each title contains a combination of text and consumable workbook. The program includes a Web site that is maintained by the publishers.

Summary

This program is not recommended because in a number of instances it is not aligned to the California Science Content Standards and does not meet the criteria. The program does not include adequate hands-on investigations and experiments that support the concepts embedded in the Standards. The Instructional Materials Advisory Panel and the Content Review Panel find some of the Standards content to be oversimplified, missing, or inaccurate.

Science Content/Alignment with Standards

Instructional materials do not support teaching and learning the skills and knowledge called for at the grade levels in the California Science Content Standards. Materials do not adequately align with the grade 6 standard 2b, grade 7 standards 2b, 3e, 4e, 4g, 5c, 5d, grade 8 standards 2e, 4a, and 5a. Grade 6 standards 1a, 1e, and 2a are not adequately addressed.

The modules do include some meaningful and safe investigations and experiments. Some of the activities are interesting and engaging to students. The program makes limited connections to the history of science and development of technology. In addition the program contains numerous errors.

Program Organization

The organization of the science program does not provide an adequate structure for what students should learn each year or allow teachers to convey the science content efficiently and effectively. The content is minimally organized and minimally presented in a manner consistent with providing students an opportunity to achieve the essential knowledge and skills described in the Standards. The panel found the lessons to be too great in number, lacking in depth sufficient for student learning, and/or not presented logically or coherently.

Assessment

Instructional resources do not contain adequate measures to assess student progress. These measures minimally reveal students' knowledge of and ability to apply scientific concepts, principles, theories and skills. The program does not fully assess students' ability to apply knowledge to understanding advanced concepts, principles, and theories. Assessment tools provide minimal evidence of students' progress towards meeting the Standards, and the measures supply minimal information teachers can use in planning and modifying instruction to help all students meet or exceed the Standards.

Universal Access

Instructional materials inadequately provide access to the Standards-based curriculum for all students including those with special needs, including English language learners, advanced learners, students with learning difficulties, and special education students.

Instructional Planning and Support

The program does not contain adequate teacher support materials with specific and extensive suggestions and examples of how teachers can implement a Standards-based science program. These materials missed the opportunity to provide a yearlong overview of instruction for each module. Assistance is minimally designed to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. These materials do not make recommendations to teachers regarding instructional approaches that fit the instructional goals. These materials minimally provide teachers with a variety of instructional approaches. Specific safety guidelines are missing or inappropriately explained in the materials.

Recommendation:

This program is **not** recommended for adoption.

Publisher: Scott Foresman
Title of Program: Scott Foresman Science
Grade Level: K-5

Components

This program includes student editions, teacher editions, activity journals, lab manual, and technology components. Materials kits are available for each grade; safety kits for primary and intermediate. Big books, which mirror the textbook, are available for grades K-2.

Summary

This program is not recommended because it is not aligned to the California Standards and does not meet the criteria. While there is attention to California State Standards, instructional materials do not support teaching and learning of the skills and knowledge called for at each grade level in the Standards. The science materials are not adequately aligned with the science content in the K-5 California Standards. There are deficiencies in the coverage of some Standards throughout the program. Some of the content is not explained in depth and is only minimally or indirectly treated. The program does provide hands-on investigations and experiments. The program includes substantial extraneous content.

Program organization is not cohesive, is unclear in its design, and is not presented in a way that allows for efficient utilization by teachers. The chapters and lessons do not have a clear discernible flow; the components appear disjointed. Instructional resources contain multiple measures to assess and provide evidence of student progress. While attention is given to universal access, the suggestions are not specifically related to the lesson and are not sufficiently descriptive so that all students are able to access the core concepts. Implementation of the program is inadequately addressed and difficult due to meager and unclear instructional approaches.

Science Content/Alignment with Standards

Under this criterion, the materials present extraneous content, do not meet all the Standards, and contain inaccuracies. The materials are not adequately aligned with the Standards, but do include some meaningful and safe investigations and experiments. For example, at grade 2 much of the materials were found to be extraneous or minimally covering the life, earth, and physical science standards. According to IMAP calculations, approximately 47% (114 of 242) of the pages in the Scott Foresman Life, Earth, Physical and Human Body chapters cover topics not found in Grade 2 California State Standards. Although many of the activities align to the Investigation and Experimentation Standards, they minimally support the teaching and learning of the life, earth and physical science Standards. Similar amounts of extraneous material can be found at other grade levels. The sheer volume of extraneous content as illustrated by grade 2 detracts from the comprehensive treatment needed for adequate development of some of the concepts in the Standards.

In addition, both the CRP and IMAP concur that the following standards were not met: grade kindergarten, standards 1c and 2a; grade 1 standards 4c and 4e; grade 2 standards 1b, 2a, 2c;

grade 3 standard 5b; grade 4 standards 4a, 6d; grade 5 standards 1c, 4c, and 4d. Below are citations of some of the areas where the IMAP and the CRP found that the science content Standards are not adequately met:

While the program may present some accurate content, the CRP and IMAP found that extensive errors were present in the program. Some of these errors reflect careless thinking. For example, at grade 2 the program call for instructors to “[h]elp the children realize that the force of gravity was one factor that caused the object to stop moving.” In actuality, the gravity makes the object fall, not stop. Other errors simply present wrong information. According to the CRP, one diagram at grade 5 incorrectly shows convection cells going through the whole mantle to the core. In fact, only the upper part of the mantle (including the anthenosphere) is involved in the cells related to plate motion.

Program Organization

Sequential organization of the science program does not provide an adequate structure for what students should learn each year, nor does it allow teachers to convey the science content efficiently and effectively. Grade 2 standards 1a, 1b are covered by jumping around to multiple strands, chapters and pages, rather than being coherently developed with more relevant examples. Also, the Grade 1 materials for standard 2a treats form and function without providing adequate conceptual development. Some standards are directly addressed solely in the “Science in California” section and/or “Your Science Handbook” sections rather than in the appropriate content chapters where the concept should be developed. The content is minimally organized and program organization is not conducive to providing all students an opportunity to achieve essential knowledge and skills described in the Standards. Although times are given for the individual activities, the “Unit and Chapter Planning Guides” do not provide overall time frames for lessons. The kindergarten teacher edition does provide topic pacing guides, but none of the other grade levels do.

Assessment

The IMAP found the assessment component to be a strength of the program. Instructional resources contain adequate multiple measures to assess student progress. These multiple measures provide abundant evidence of student progress toward meeting the Standards and are found in “Lesson Reviews, Chapter Reviews, Unit Reviews and Performance Assessments.”

Universal Access

Instructional materials provide access to the Standards-based curriculum for all English language learners (ELL) and advanced learners. However, the SDAIE tips are too general and inadequate for teachers to assist students in accessing the core concepts. For example, “Encourage alternate ways in which children can demonstrate learning” or “Use and extend the activity to develop related content and conversational language” are too vague for both experienced and beginning teachers. The IMAP members recommend omitting the following two sentences: “Ask ELD students which scale is used in their native countries.” because ELL students may be US-born citizens; “Ask ESL students if they have had any personal experience with volcanoes,” because it is a gratuitous question.

Instructional Planning and Support

The program does not contain teacher support materials with extensive suggestions and examples of how teachers can implement a Standards-based science program. In kindergarten, for example, there is little treatment of the structural diversity of plants and animals, nor is there much discussion of the major structures and parts of plants and animals. Some of the investigative activities are one-time and simplistic, for example create clay models of the four stages of a butterfly. This activity does not encourage children to make careful and accurate depictions of the major structures of the larva, pupa or butterfly, nor to compare and contrast features. An alternative activity would be for the children to actually watch the development of a live butterfly larva through its several stages and draw detailed and labeled illustrations of what they observe. Throughout the program there is inadequate support for teachers about what to do if predictions do not agree with observations. The program is inadequate in guiding teachers to the next step of what to do with these discrepancies. In addition, there is inadequate design and guidance in the Explore Activities and Investigations within the chapters to teach students to make multiple measurements to improve accuracy and demonstrate repeatability.

Recommendation:

This program is **not** recommended for adoption.

Publisher: SRA/McGraw-Hill
Title of Program: Real Science
Grade Level: K-6

Components

This program includes student editions, teacher editions, activity journals, technology and Science Connection Center components. Materials kits are available for each grade; safety kits for primary and intermediate. Big books, which mirror the textbook, are available for grades K-2.

Summary

This program is not recommended for adoption, because it fails to address several of the content standards. A weakness of the program is the lack of depth of coverage. Some standards are addressed superficially and the program fails to sequentially build understanding of the fundamental science concepts called for in the Standards. In particular, the program is lacking at all grade levels in the depth of its treatment of the Investigation and Experimentation standards.

Science Content/Alignment with Standards

While there is instructional content to address the standards in life, earth and physical science, concepts are developed in a superficial manner. Some standards such as grade 2 standard 1e and grade 6 standard 4c are addressed with only a one-line reference. Adequate connections to the history of science, technology, mathematics, reading and writing expository text are made largely through the Science Connection Center component. At grade levels 1, 3, 4, 5, and 6 the program fails to adequately support teaching and learning the skills and knowledge called for in the Standards. The IMAP and CRP found the following standards are not addressed: grade 1 standard 4e; grade 3 standard 5a; grade 4 standards 6c and 6d; grade 5 standards 3d and 4.e; grade 6 standards 2d, 4d, 5d, 7d, and 7h.

Program Organization

The SRA program concentrates in the area of reading, with minimal opportunities to learn directly about science concepts through inquiry-based activities. Activities are teacher directed and not student directed. They do not give students an opportunity to formulate and test their own questions. The program is adequately organized. The lack of depth of coverage of the Standards makes it difficult for teachers to convey the science content and prepare students to master content at each later grade.

The program includes adequate organizational assistance: an overview of content in each chapter unit, clearly stated student outcomes and goals that are measurable and standards-based, and organizers such as tables of contents, indices, glossaries, content summaries and assessment guides. However, the lack of depth of coverage in the content overshadows the organizational strengths.

Assessment

Instructional resources contain adequate measures to assess student progress. These measures minimally reveal students' knowledge of and ability to apply scientific concepts. Assessment tools provide evidence of students' progress towards meeting the Standards and some information teachers can use in planning and modifying instruction.

Strengths include multiple measures of individual student progress at regular intervals. Guiding questions for monitoring student understanding during investigations are helpful. Prior knowledge is assessed at the opening of each lesson, but the program does not tell teachers how to use that information for program planning. Although scoring rubrics may be utilized by the teacher, the rubrics are not available for students.

There are several inherent weaknesses in the Investigation and Experimentation assessment materials. Graphs, graphing, and interpretation of graphs, as required by grade 4 standard 4e, grade 5 standard 6g, and grade 6 standard 7c, are covered minimally. There are many charting activities that could be used to generate graphs, but there are no directions to do so.

In the "Portfolio Assessment," report writing is covered minimally in the "Activity Journal" but the journal entries do provide the first step in the writing process. To give written or verbal reports requires the teacher to generate additional planning. Prompts are available and apparent in the activities and journal; however the teacher is not provided with support in how to help students with report writing.

The program addresses common misconceptions of the scientific concepts, but no strategies are offered to address or correct the misconceptions.

Universal Access

Instructional materials attempt to provide access to the Standards-based curriculum for a variety of students. Suggestions for meeting the needs of English Language Learners are mostly vocabulary development activities, and could be strengthened to enable students to access science concepts. A strength in this area is the translation of vocabulary for each chapter. Suggestions for advanced learners could be strengthened with the addition of critical thinking activities and allowing students to study content in greater depth. Additional access to science concepts is provided by the use of videos.

Instructional Planning and Support

The program contains adequate teacher support materials, but the materials are lacking suggestions and examples of how teachers can implement a Standards-based science program in an in-depth manner. These materials provide teachers with a variety of instructional approaches. For example, strengths include the unit-planning guide, chapter planning guide and both three and five-day chapter pacing guides. There are also suggestions and information to promote classroom safety in doing hands-on investigations, experiments and demonstrations at the beginning of each unit. Videos, laserdiscs and DVDs at each grade level are a major part of this program.

Including clearly written and accurate explanations of concepts, principles and theories that are understandable to teachers could strengthen program support.

Recommendation:

This program is **not** recommended for adoption.

Publisher: Videodiscovery, Inc.
Title of Program: Life Lab
Grade Level: K-2

Components

This program includes a laserdisc and directory, Teacher's Resource Book, re-producible student lab books for grades 1 and 2, Guess-Test-Tell poster, garden log calendar, gardening book, and audio tape.

Summary

This program is not recommended for adoption. This program does not align with State Science Content Standards, but it does provide children with meaningful science experiences in a garden setting.

Science Content/Alignment with Standards;

Instructional materials do not support teaching and learning the skills and knowledge called for in the Standards. By the publisher's own admission some standards are not addressed, for example, grade 2, standards 1f and 3d. Also, many standards are inadequately addressed. One example is in first grade, Standard 2d, which states "infer what animals eat from the shapes of their teeth." This was not directly addressed, as the program is limited to invertebrates found in a garden. The videodisc images cited in "Behavior: Feeding" do not specifically show the shape of teeth. The program is particularly weak in physical science content. There is no content connected to magnets or sound as vibrations, as called for at grade 2 standards 1f and g. Sound is simply addressed by observation and identification along with an illustration on the videodisc of sound reaching the eardrum. However, no specific information was included regarding vibration, pitch, and volume, as required by grade 2, standard 1g. For kindergarten, standard 1b, the material inadequate, as water is not shown to change from ice to liquid and back to a solid. Standard 2b was not addressed since the literature cited by the publisher was not included as part of the submission. This program does an adequate job of presenting some materials, such as kindergarten, standard 2a, and grade 1, standard 2a.

This program makes minimal connections to the history of science, expository writing, and technology. The program misses the opportunity to refer to scientists who have made significant contributions, such as George Washington Carver, Jean Baptiste van Helmont, or Luther Burbank. The program asks students to draw their observations but does not encourage the writing of expository text. Technology is limited to the teacher's use of the videodisc and the students' handling of garden and measurement tools.

Although the materials are not adequately aligned with the Standards, many of the investigations are meaningful and safe. The program is relevant to daily life and deals effectively with societal issues, such as conservation and stewardship.

Program Organization

Grade-level organization of the program does not align with the Standards. This program has a logical organization with a planning calendar and daily lessons. Investigations and activities are

age and grade appropriate, and the teacher background information provides sufficient support to implement the program. There is no regular homework component, but parent letters to support school-to-home connections are included. Expected student outcomes are noted in teacher planning resources.

One omission in the program is that the videodisc is not cross-referenced in the teacher's texts at point of use or need. The publisher links videodisc images of natural resources to the lesson, however, no correlation is found in the teacher's manual.

Assessment

There are multiple opportunities for pre-assessment through the "Tell-Guess-Test" posters and "What-We-Know-About" charts, and the first lesson of each unit. Informal assessment appears in various discussion activities. The program is lacking in formal assessment and misses opportunities for individual student assessments. It lacks performance assessments that include rubrics. Teacher reflections are useful but do not focus on individual achievement or student needs. For example, "Assessment sections pose several questions for the teacher to ask but omit guidance to modify instruction. There is no structure for recording individual student progress.

Universal Access

Instructional materials are not aligned to Standards but do provide access for a variety of learners. The "Digging Deeper" section at the end of each lesson provides advanced learners opportunities to study science content in greater depth. Strategies such as "List all ideas on the chalkboard" and "Describe to others" allow ELL and special needs students the opportunity to participate and understand science content. The program's use of music provides access for students with varied learning styles. Lessons and activities incorporate collaborative learning strategies that include all learners.

Instructional Planning and Support

The program contains teacher support materials specific to its own content. Teachers are provided with clearly written explanations of concepts, principles, and theories, which can be easily understood, as each unit summary includes science background for the teacher. Although misconceptions are addressed in each chapter introduction, possible misconceptions could be developed by viewing images that are not narrated on the videodisc. Teachers are provided with a variety of strategies to help set up effective groups. The program provides organized lesson plans, lists required equipment and supplies that are economical, and gives suggestions for safe classroom procedures and activities. However, providing an outdoor garden to support program activities may not be feasible.

Recommendation:

This program is **not** recommended for adoption.

Publisher: Videodiscovery, Inc.
Title of Program: “Science Sleuths Elementary” CD Rom Series
Grade Level: 3-6

Components

This program includes 24 hybrid CD-ROMs with a “unit-of-study” matrix and four teachers’ guides.

Summary

This program is not aligned to the Standards and therefore does not meet the requirements for adoption. Organization of the science program does not provide adequate structure to align with the Standards and does not provide a framework for teachers to convey the science content efficiently. This program could be used as an ancillary resource that invites children to explore.

Science Content/Alignment with Standards;

Instructional materials do not support teaching and learning the skills and knowledge called for at the grade levels in the Standards. By the publishers own admission the following Standards are not covered: grade 4 standard 1b; grade 5 standards 1e, 1f, 1g, 1h, 1i, 2c, 2d, 3d, 3e; and grade 6 standards 1g, 3b, 3c, 4a, 4c, 4d.

The program requires more in-depth coverage of content areas that cannot be corrected without extensive revisions. The program does not contain physical sciences lessons on convection and conduction through solids and liquids, as required by grade 6, standard 3c. The Period Table of the Elements and its organization by chemical properties is not addressed, as needed to meet grade 3 standard 1I, and grade 5 standard 1d. Although materials are not fully aligned with the standards, they do include meaningful and safe investigations and experiments. This program also presents accurate content that draws upon current scientific research with “virtual” scientific equipment.

This program does not make adequate connections to the history of science and technology. The lack of hands-on use of real equipment impedes the development of math skills. In all labs, measuring, weighing, and collecting data are all done “virtually.” This does not require the learner to know how to operate the tools or to analyze the collected data. Consequently, this prevents the students from performing multiple trials to improve accuracy. Reading expository text is included in the “Documents Box” on the “Sleuth Net” for each disk, however, there is no opportunity for the learner to practice any expository writing related to the science activities. Authentic research is not provided in the format of this program. Despite these weaknesses, this program could be utilized as a resource to engage children in the scientific process.

Program Organization

Although each set of episodes provides a logical flow, they do not align to the standards. The content is neither organized nor presented in a manner consistent with providing all students an opportunity to achieve the essential knowledge and skills described in the standards at the appropriate grade levels. The same episodes are used to meet standards at multiple grade levels. For example, “The Alarming Episode” is used to meet grade 3 standards 1c, 1d; grade 4

standards 1a, 1d, 1e, 1f, 1g; and grade 6 standard 6a. “The Puzzle of the Missing Salmon” is used to meet grade 3 standards 3a, 3b, 3c, 3d, 3e; grade 4 standards 3a, 3b, 3c; and grade 6 standards 5e and 7h. With repeated use the students solve the same mysteries at each grade level, yet there is no component built-in to extend or change the depth of knowledge.

Assessment

This program lacks adequate multiple assessments that could provide information to teachers for use in planning and modifying instruction to help all students meet or exceed the standards. Scientific concepts, principles, theories, skills and their applications are demonstrated in the “Virtual Labs” and recorded in the journals, but instructional resources do not contain adequate multiple measures to assess student progress toward meeting the Standards. Because the “Virtual Labs” do not allow for performance outside of a controlled environment, they do not provide for student assessment.

Universal Access

Instructional materials provide auditory and visual access, yet fail to meet the needs of kinesthetic learners, below grade level readers and English language learners. This program could serve as an ancillary program for advanced learners.

Instructional Planning and Support

The program does not contain specific and extensive suggestions for teachers to implement a standards-based science program. Minimal assistance is provided to help the teacher implement the program in a way that ensures all students will learn the essential skills and knowledge called for in the Standards. These materials make minimal recommendations to teachers regarding instructional approaches, as the program omits background information for teachers, pre-assessments, and hands-on use of real equipment and tools to aid development of concepts and skills.

Recommendation:

This program is **not** recommended for adoption.

Publisher: Videodiscovery, Inc.
Title of Program: Earth Science CD Rom Series
Grade Level: 6

Components

This program includes four volumes (2 discs each) of CD ROMs and a teachers' guide for each unit with the exception of "The Universe". Lessons are available in the Teachers' Manuals and also through the on-line website.

Summary

This program is not recommended for adoption, because it is not aligned to the Standards and does not meet the criteria. The program includes limited hands-on investigations and experiments and contains an overwhelming amount of information that hinders Standards-based instruction. This program is not aligned to the Standards, although it is an interesting and engaging study of Earth Science. This could serve as an ancillary resource for any 6th grade program. The built-in capability to create individualized or personalized "media shows" contributes to meeting the needs of a variety of learners.

Science Content/Alignment with Standards;

Instructional materials do not support teaching and learning the skills and knowledge called for at grade 6 in the Standards. By the publisher's own admission, standards 6c, 7a, 7b, 7c, 7d, and 7e are not addressed. Materials are not fully aligned with the Standards yet do include some meaningful and safe investigations and experiments. The CD-ROM, "Understanding Earth" limits the topic of waves to water and neglects light and heat waves. Lesson 19 partially addresses Standard 6a as it covers petroleum but does not adequately cover hydro-electric energy. Coverage is limited to a videodisc image and limited discussion tips. This program minimally presents content that draws upon current scientific research. Lesson 12 "Geohazards: Earthquakes and Landslides" omits current dates and locations in "Discussion Tips and Background Information" and "Understanding Earth". Although the program is interesting and engaging to students, it is not fully aligned to the Standards. The presentation of information is limited to an encyclopedic format.

This program makes adequate connections to the history of science, technology, mathematics, and reading expository text. Opportunities for oral presentation and writing expository text are limited to student prepared "Media Shows".

Program Organization

The content is not organized or presented in a manner consistent with providing all students an opportunity to achieve the essential knowledge and skills described in the standards. The program flows conceptually but fails to align with the standards. Resources from multiple CD-ROMS are required to meet the minimum requirement of some standards. Standards 3a and 6b require use of "The Water Planet", "The Atmosphere" and "The Universe", but are not compiled into individual lessons. This impedes the mode of presentation and limits teachers or students who have access to only one computer. One major omission is the absence of a teacher's manual for the CD-ROM "The Universe."

Assessment

Although this program allows teachers and students to create and organize their own media shows, the instructional resources do not contain multiple measures to assess student progress. The “Mineral Families” assessment asks students to draw a concept map using terms from the lesson, but no example or rubric is given for evaluation. Direct assessment of applications of scientific concepts and theories or skills is not available. There are missed opportunities for meaningful hands-on investigation and for written evidence of conceptual understanding. For example, a series of visual images are referred to as an experiment to be used as an assessment. No direct help is evident for teachers to use in planning and modifying instruction to help all students meet or exceed the Standards. Electronic tutorials for building media shows were not found.

Universal Access

Instructional materials inadequately provide access to a Standards-based curriculum for all students. The program’s format limits accessibility for kinesthetic learners, English language learners, special education students and those with learning difficulties. The format of presentation seems beneficial for advanced learners or higher level thinkers, as personalized “Media Shows” provide a platform for student presentations. This could be a resource supplement for accelerated learners.

Instructional Planning and Support

The program does not contain specific support materials, suggestions for extensions nor examples for the implementation of a Standards-based science program. Minimal assistance is provided to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the standards. Although a “Thematic Matrix” and “Science Process Skills Matrix” are included, the omission of a conceptual overview that aligns with the Standards makes it difficult to adequately cover the required content. These materials contain a wealth of suggested activities and recommendations to teachers regarding instructional approaches, but they are not aligned to fit the instructional goals of the standards. Lessons are primarily limited to discussions and photo presentations.

Recommendation:

This program is **not** recommended for adoption.

Appendix A: Criteria For Evaluating K-8 Science Instructional Materials

**Adopted by the California State Board of Education
March 10, 1999**

In October 1998, the California State Board of Education adopted Science Content Standards for Grades K-12 (referred to as the Standards) that describe what students should know and be able to do at each grade level. The Standards define the essential skills and knowledge in science that will enable California students to compete with their peers around the world.

The Standards are written for each grade, K-8, and in one span for grades 9-12. The content within each grade or span is organized into strands. The strands for grades K-5 are Earth Sciences, Life Sciences, Physical Sciences, and Investigation and Experimentation. After 5th grade, the content has been organized in concentrations as follows: 6th grade: Focus on Earth Science; 7th grade: Focus on Life Science; 8th grade: Focus on Physical Science. Standards from other strands are included in grades 6, 7 and 8 that support the concentration at each of these grade levels. The Investigation and Experimentation strand appears for each of the middle school grades. The 9-12 Standards are organized as follows: Physics, Chemistry, Biology/Life Sciences, Earth Sciences, and Investigation and Experimentation.

Students should have the opportunity to learn science by direct instruction, by reading textbooks and supplemental materials, by solving Standards-based problems, and by doing lab investigations and experiments. At each grade level for grades K through 8, a list of essential, and progressively more sophisticated investigation and experimentation standards is included. These investigation and experimentation standards should be integral to, and directly and specifically supporting the teaching of the Life, Physical and Earth Science standards at the time the material is taught.

For the 9-12 grade span, one Investigation and Experimentation strand is included and should be woven into the teaching of Life, Physical and Earth Science throughout that grade span.

This document provides criteria for evaluating the alignment of instructional materials with the Standards and the quality of those materials in four additional areas (program organization, assessment, universal access, and instructional planning and support). These criteria will guide the development and govern the adoption of K-8 instructional materials in 2000 and the interim adoption in 2003 or 2004. These criteria do not recommend nor require one particular pedagogical approach. The numerical order of the criteria within each category does not imply their relative importance. These criteria may also be used by publishers and local education agencies as a guide for the development and selection of instructional materials for grades 9-12.

These criteria are organized into five categories:

1. **Science Content/Alignment with Standards;** the content as specified in the California Science Standards.
2. **Program Organization;** the sequence and organization of the science program.
3. **Assessment;** the strategies presented in the instructional materials for measuring what students know and are able to do.
4. **Universal Access;** the information and ideas that address the needs of special student populations, including students eligible for special education, advanced students, students whose English language proficiency is significantly lower than that typical of the class or grade level, and students whose achievement is either significantly below or significantly above that typical of the class or grade level.
5. **Instructional Planning and Support;** the instructional planning and support information and materials, typically including a separate edition specially designed for use by the teacher, that assist teachers in the implementation of the science program.

Science materials must support teaching aligned with the Standards. Materials that fail to meet the science content criteria will not be considered satisfactory for adoption. Only those programs determined to meet criterion category 1 need to be evaluated under criteria categories 2-5.

In an effort to create focused science instructional materials, publishers are asked to concentrate on the content as described in the Standards. They are encouraged to include hands-on investigations and experimentations. To the extent that a program includes content that is extraneous to instruction in the standards, it may do so if the extraneous content is not fundamentally contrary to any of the

standards and it does not detract from the ability of teachers to teach readily and students to learn thoroughly the content specified in the standards.

Criteria Category 1: Science Content/Alignment with Standards

Instructional materials support teaching and learning the skills and knowledge called for at each grade level in the Standards. Materials are fully aligned with the science topics in the K-8 Standards, however the order of the science standards does not imply an organization for the materials.

To be considered suitable for adoption, instructional materials in science will provide:

1. A list of evidence, with page numbers and/or other appropriate references that demonstrates alignment with the Standards.
2. That all content Standards as specified at each grade level are supported by topics or concepts, lessons, activities, investigations, examples, and/or illustrations, etc., as appropriate.
3. Accurate content with examples drawing upon scientific evidence and up-to-date science research to support science concepts, principles, and theories.
4. Science content that is presented in interesting and engaging ways to students.
5. Scientific terms and academic vocabulary appropriately used and accurately defined.
6. Investigations and experiments with clear procedures and explanations of underlying concepts, principles and theories, integral to and supportive of the teaching and learning of the Life, Physical, and Earth Science standards, so that investigative and experimental skills are learned in the context of those content standards.
7. Investigations and experiments that focus on demonstrating scientific principles in the content area, will in practice produce meaningful data, and can be safely and inexpensively conducted.
8. Investigations and experiments that develop investigative skills and judgment, logical thinking, and understanding of scientific principles, and develop the ability to gain knowledge through observation, inquiry, and experiment with attention to organization, interpretation, and presentation of data.
9. Opportunities for students to increase their knowledge of science through study of the historical development of scientific thought and examples of the lives, work, and contributions of scientists if they contribute to the understanding of the Standards.

10. Opportunities for students to study connections between science and technology that support understanding of the Standards, including societal impacts/issues, and the interdependence and distinction between technology and science.
11. For each grade, practice in the use of mathematics to quantify relationships and solve science problems using mathematics up to and including grade level as defined in the California Mathematics Standards.
12. Reading and writing expository text aligned with the appropriate State standards.

Criteria categories 2-5 shall be considered as a whole, with each program passing or failing the criteria as a group. A program may have weaknesses in several of the areas identified in criteria 2-5, but, on balance, be determined worthy of adoption. Conversely, though having strengths in several of the areas of evaluation, a program may have so glaring a weakness in a single area of evaluation as to be determined not worthy of adoption.

Criteria Category 2: Program Organization

Sequential organization of the science program provides structure concerning what students should learn each year and allows teachers to convey the science content efficiently and effectively. The content will be well organized and presented in a manner consistent with providing all students an opportunity to achieve the essential knowledge and skills described in the Standards.

To be considered suitable for adoption, instructional materials in science should provide:

1. Instructional resources, aligned with the Standards, that introduce new concepts at a reasonable pace and depth of coverage, and explicitly prepare students to master content at each later grades.
2. The organization of a science program provides a logical and coherent structure which facilitates efficient and effective teaching and learning within a lesson, unit and year aligned with the Standards.
3. Clearly stated student outcomes and goals that are measurable and standards-based.
4. An overview of the content in each chapter or unit which outlines the scientific concepts and skills to be developed.
5. A well-organized structure that provides students with the opportunity to understand scientific concepts, principles, and theories and built upon a foundation of facts, investigative skills and scientific inquiry.

6. A variety of investigations and experiments, problems and applications, that organize the content in the grade level in a logical way, such that prerequisite skills and knowledge are developed before the more complex concepts, principles and theories which depend on them.
7. Tables of contents, indices, glossaries, content summaries, and assessment guides, that are designed to help teachers, parents/guardians, and students.

Criteria Category 3: Assessment Criteria

Assessment should measure what students know and are able to do. Instructional resources should contain multiple measures to assess student progress. Assessment measures should reveal student's knowledge of scientific concepts, principles, theories and skills as well as the ability to apply their knowledge to understanding advanced concepts, principles, and theories. Assessment tools that publishers include as part of their instructional material should provide evidence of students' progress towards meeting the Standards, and should provide information teachers can use in planning and modifying instruction to help all students meet or exceed the Standards.

To be considered suitable for adoption, instructional materials in science should provide:

1. Strategies or instruments teachers can use to determine students' prior knowledge.
2. Multiple measures of individual student progress at regular intervals to evaluate attainment of grade level knowledge and understanding of scientific concepts, principles, theories and skills.
3. Guiding questions for monitoring student understanding during investigations.
4. Performance assessments and accompanying rubrics students can use to evaluate and improve the quality of their own work.

Criteria Category 4: Universal Access Criteria

Instructional materials should provide access to the Standards-based curriculum for all students including those with special needs: English language learners, advanced learners, students with learning difficulties, and special education students. Programs must conform to the policies of the State Board, as well as other applicable state and federal guidelines, pertaining to diverse populations and students with special needs.

To be considered suitable for adoption, instructional materials in science should provide:

1. Suggestions based on current and confirmed research for ways to adapt the curriculum and the instruction to meet students' assessed special needs.
2. Strategies to help students who are below grade level in science.
3. Strategies to help students with reading difficulties understand the science content.
4. Suggestions for advanced learners that are tied to the Standards and that allow students to study content in greater depth.

Criteria Category 5: Instructional Planning and Support Criteria

Teacher support materials should be built into the instructional materials and should specify suggestions and illustrative examples of how teachers can implement a Standards-based science program. Assistance should be designed to help the teacher implement the program in a way that insures the opportunity for all students to learn the essential skills and knowledge called for in the Standards. These criteria do not recommend or require one particular pedagogical approach. Publishers should make recommendations to teachers regarding instructional approaches that fit the instructional goals. Programs should provide teachers with a variety of instructional approaches which might include, but are not limited to, direct instruction, assigned reading, demonstrations, hands-on and inquiry-based investigations.

To be considered suitable for adoption, planning and support resources in science should provide:

1. Clearly written and accurate explanations of concepts, principles and theories, understandable by teachers.
2. Examples of students' common misconceptions of the scientific concepts and strategies to address and correct the misconceptions.
3. A variety of pedagogical strategies for flexible grouping of students.
4. Lesson plans and suggestions for organizing resources in the classroom and ideas for pacing lessons.
5. A list of required equipment and supplies that support the Standards-based program.

6. Economical equipment and supplies with recommendations for their use (included with the materials) and/or recommendations for using and obtaining alternative materials and equipment that are inexpensive and readily obtainable.
7. Suggestions and information to promote classroom safety in doing hands-on investigations, experiments and demonstrations. Instructions for safe and effective use of required equipment, materials and supplies called for by the program, along with clear instructions for using and maintaining the equipment should also be included.
8. Suggestions for how to use student assessment data within the program for instructional planning purposes.
9. Technical support and suggestions for appropriate use of instruments or tools, audiovisual, multi-media, and information technology resources associated with a unit.
10. Suggestions for activities and strategies to inform parents/guardians about the science program.
11. References and resources for the teacher, to provide further study of scientific content.
12. Demonstration electronic resources (e.g. videos, CDs) for teachers at each grade level, depicting appropriate laboratory techniques, experiments, and teaching suggestions.
13. Homework assignments that support classroom learning, written so that parents/guardians can easily help their children.
14. Suggestions that are tied to the Standards and that allow students to study content in greater depth.

APPENDIX B: LEARNING RESOURCES DISPLAY CENTERS

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•Beverly Edwards, LRDC #16
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•* LRDC's 15 & 18 are sharing technology responsibilities. LRDC #15 will showcase Macintosh resources and LRDC #18 will showcase IBM resources. When possible, please sample accordingly.

November 2, 1999